NEVADA COOPERATIVE SNOW SURVEYS

****

Part II. Humboldt Basin, Central and Southern Nevada

****

Snow Survey March 1, 1941

Issued in cooperation with the Nevada Agricultural Experiment Station, Division of Irrigation of the Soil Conservation Service, Forest Service, Bureau of Reclamation, Weather Bureau, Geological Survey, Humboldt River Water Users, Nevada State Engineer, and Elko-Lamoille Power Company.

Nevada Agricultural Experiment Station

Reno, Nevada

SNOW SURVEY

MARCH 1, 1941

FEDERAL-STATE COOPERATIVE SNOW SURVEYS*

******

HUMBOLDT RIVER BASIN

***

Past experience has demonstrated that a forecast for the flow of the Humboldt Basin Streams cannot be attempted until the April 1 snow surveys have been made since the snowfall or lack thereof during the month of March makes a large difference in the expected yield of the watershed. The forecast has not been released until about April 10 for many years although the principal survey was made on March 1. Since there are some engineers and others that are interested in the data as soon as the surveys are made, it was deemed advisable to issue a bulletin giving this information as soon after March 1 as possible.

In this bulletin, no attempt is made to give a forecast of the expected runoff of the streams. The data are published as received and computed and comparative figures of the water content on the courses for the past five years are given for the sake of those who desire to make their own study of the snow storage situation. There is also a table given which shows the increase or decrease of the snow water-content on the key courses during the month of March as shown by the March 1 and April 1 surveys. This table demonstrates the uncertainty of the amount of the final snowpack as shown by a March 1 measurement.

The regular forecast of stream flow together with detailed data will be issued, as in the past, about April 10th.

---

* The Federal-State Cooperative Snow Surveys in the Humboldt Basin includes: The Nevada Cooperative Snow Surveys, Division of Irrigation of the Soil Conservation Service, Forest Service, Bureau of Reclamation, Weather Bureau, Nevada Agricultural Experiment Station, Geological Survey, Humboldt River Water Users, Nevada State Engineer, and the Elko-Lamoille Power Company.

MARCH 1 SNOW SURVEY, HUMBOLDT BASIN, NORTH OF HUMBOLDT RIVER.

	Elevation	1941 Date	Snow depth inches	Density percent	Water content	Water content on same date previous years 1940	1939	1938	1937	1936
Upper Humboldt Basin										
Midas	7000	Feb. 28	18.7	38.9	7.28	5.2*				
Jack Creek	7800	Mar. 2	28.7	32.7	9.38	8.9	12.9	4.5	7.3	15.4
Jack Creek	7000	Mar. 2	10.1	41.7	4.21	1.3	7.9	2.4	4.4	8.2
Taylor Canyon		Feb. 27	21.3	38.7	8.25	3.0	5.6	4.9	7.8	10.3
Tremewan Ranch		Feb. 28	8.8	36.4	3.20	0	2.4	0	4.9	5.5
Rodeo Flat	7000	Mar. 2	29.5	35.6	10.5	7.5	11.0	6.5	8.6	18.8
Fry Canyon	6800	Mar. 2	25.5	36.0	9.19	6.5	10.0	7.2	10.0	18.1
Big Bend		Mar. 1	29.4	33.7	9.90	6.4	7.2	8.2	9.4	16.4
Gold Creek Ranger St.		Mar. 1	20.1	30.8	6.20	4.7	4.5	4.8	7.8	11.2
Bear Creek		Mar. 4	48.2	29.5	14.2	15.3	16.6	16.3	15.6	22.5
Fox Creek		Feb. 27	24.1	31.4	7.57	5.7	8.7	7.2	9.1	13.6
Marys River						14.7	16.5	14.2	14.9	25.4
Little Humboldt Basin										
Lamance Creek		Feb. 26	34.5	34.5	11.90	9.9	8.7	6.9	11.0	19.9
Granite Peak		Mar. 3	45.0	35.0	15.73	15.0	12.8	13.5	7.9	12.83
Martin Creek Ranger St.		Feb. 28	24.6	31.6	7.78	6.8	5.8	8.1	6.0	7.54
Upper Buckskin Mt.		Mar. 1	35.8	37.4	13.39	10.8	8.0	7.2	6.8	13.27
Lower Buckskin Mt.		Mar. 2	25.9	32.5	8.41	5.8	6.7	8.1	8.3	11.06

* February measurement

MARCH 1 SNOW SURVEY, HUMBOLDT BASIN, SOUTH OF HUMBOLDT RIVER.

	Elevation	1941 Date	Snow depth inches	Density percent	Water content	Water content on same date previous years 1940	1939	1938	1937	1936
Upper Humboldt Basin										
Lamoille Creek	9000	Feb. 28	69.8	32.5	22.72	20.4	23.4	19.0	20.3	36.5
Lamoille Creek	9000 cross	Feb. 28	65.2	32.7	21.34	19.4	22.7	16.3	20.3	34.2
Lamoille Creek	8500	Feb. 27	44.3	34.6	15.32	14.7				
Lamoille Creek	8100	Mar. 1	33.7	33.1	11.17	11.8	12.6	10.7	12.9	17.4
Lamoille Creek	7600	Mar. 1	28.0	33.3	9.42	9.1	9.4	9.2	10.5	14.1
Lamoille Creek	7400	Feb. 26	28.1	36.4	10.23	7.4	8.6	8.9	10.3	14.3
Corral Canyon	8500	Mar. 4	49.0	27.0	13.25	14.4	16.1	11.3	8.1	16.5
Green Mountain	8000	Mar. 1	41.1	33.3	13.7	13.1	15.3	11.1	11.8	20.6
Harrison Pass No. 2	7400	Feb. 28	21.1	28.5	6.01	4.9	5.3	5.5	5.6	8.0
Harrison Pass No. 1	6600	Feb. 27	16.6	32.3	5.37	4.6	5.1	4.4	5.2	7.9
Hager Canyon	8500	Mar. 4	47.5	31.2	14.82	19.3				
Cave Creek	7000					12.4				
Dorsey Basin	8100	Mar. 2	43.5	22.1	9.60	11.3	8.1	6.1	10.0	19.8
Dry Creek	6500	Mar. 2	19.8	33.3	6.60	3.2	3.6	5.8	9.6	11.0
Ryan Ranch	5775	Mar. 3	1.2	37.9	0.44	0.5	1.6	1.5	4.8	3.5
Trout Creek	8500	Mar. 6	69.1	36.0	24.88	19.7	19.6	16.1	22.7	28.8
Trout Creek	6900	Mar. 3	16.2	40.1	6.50	7.4	5.0	6.5	8.6	8.6

WINTER PRECIPITATION

	Elko	Lamoille	Hylton	Arthur	Wells	North Fork	Tuscarora	Paradise
November	0.28	1.25	0.43	0.72	0.79	0.33	1.14	0.72
December	1.62	1.61	0.85	0.83	1.44	1.52	1.50	1.38
January	1.05	0.69	1.04	2.43	0.61	1.53	1.83	2.07
February	1.16	1.38	1.09	1.44	.74	1.82	1.69	1.83
Total	4.11	4.93	3.41	5.42	3.58	5.20	6.16	6.00
Weather Bureau normal	4.43	6.33	5.04	7.38	4.00	4.64	6.02	4.38

Precipitation below normal on South Side; slightly above normal on North Side; considerably above normal in Little Humboldt.

WINTER RUNOFF 1940-1941
(acrefeet)

	Humboldt River at Palisade		Martin Creek at U.S. Gaging Point	
	1940-41	1939-40	1940-41	1939-40
Nov.	1,570	2,300	510	350
Dec.	2,200	3,510	550	450
Jan.	3,840	5,900	555	500
Feb.	13,346	12,000	2,650	1,690
Total (Nov-Feb)	21,036	23,710	4,265	2,990

TEMPERATURE DEPARTURE FROM NORMAL AT ELKO, NEVADA. °F.

	1940-41	1939-40
November	-2.6	+3.3
December	+4.0	+8.3
January	0.0	+5.2
February	+4.0	+5.9
Average	+1.4	+5.7

WELL MEASUREMENTS

Lamoille Valley

(Average of 5 wells on March 1)

1935..... 5.03 ft. below surface of ground

1936..... 3.72

1937..... 3.57

1938..... 4.50

1939..... 3.92

1940..... 4.50

1941..... 5.70

MAIN HUMBOLDT

In the entire Humboldt Basin the snow cover is better on March 1 than on March 1 last year. Dividing the area by sections, the northern feeders of the main Humboldt now have 40% more snow than on March 1, 1940. Of the southern feeders Lamoille and South Fork have 7% more and Trout Creek 16% more than last year. Reports have not yet been received from Dorsey Basin. The reasons for the apparent divergence between the northern and the southern feeders is that the snow cover a year ago in the north was abnormally lower than in the south. The present year the snow courses on both sides of the basin are more nearly uniform in percentage of normal. However, none of the courses are up to normal.

The precipitation during the months of November-February is also below normal on the south side of the Basin but slightly above normal on the north side. The temperature for this period was 1.4°F. above normal as compared with 5.7°F. last year. However, excess temperature in winter is usually insufficient to cause serious melting. The winter runoff of the Humboldt for Nov-Feb. at Palisade was 21,036 acre feet as compared with 23,710 acre feet last year.

LITTLE HUMBOLDT

The snow cover the present year on March 1 is 18% better than a year ago. The precipitation for Nov-Feb. was also considerably above normal. The runoff of Martin Creek for this period (Nov-Feb.) was 4,265 acre feet as compared with 2,990 in the similar period of 1939-40.

Forecast

The runoff for the coming summer will depend upon the precipitation during March. The density of the snow is high, indicating the effect of the winter temperature and a tendency to melt readily. To date as good a runoff as last season can be expected. Tables are included to assist in comparison of the present season with the previous seasons of 1936 through 1940. The table indicating change in snow cover during March for the years since 1935 will afford opportunity to follow the effects of the winter.

Final forecast will be made about April 10th.

WILD LIFE REFUGES

The U. S. Fish and Wild Life Service is now cooperating in the taking of snow surveys in its various refuges to determine the snow conditions in winter and water supplies in summer. In Ruby Valley the snow survey at Hager Canyon indicates a snow depth on March 4th of 47.5 in. and water content 14.82 in. (dens. 31.2%).

In the Sheldon Antelope Refuge in northern Washoe County on February 27th. the snow on Mahogany Mountain was 16.9 in. depth with water content of 5.28 in. (dens. 31.2%) and on Bald Mountain 21.6 in. snow with water content 5.93 in. (dens. 27.5%).

PAST RECORD OF CHANGE IN SNOW WATER CONTENT DURING THE MONTH OF MARCH AS SHOWN BY THE MARCH 1 AND APRIL 1 SNOW SURVEYS.

(ALL FIGURES ARE INCHES WATER DEPTH)

		Lamoille 7400	Lamoille 7600	Lamoille 8100	Lamoille 9000	Big Bend	Fox Creek
1935	March 1	7.6	7.5	8.6	20.4	9.4	7.4
	April 1	-	8.5	11.4	-	8.8	6.9
1936	March 1	7.1	14.1	17.4	36.5	16.4	13.6
	April 1	14.3	15.9	17.2	33.9	19.2	15.9
1937	March 1	10.3	10.5	12.9	20.3	9.4	9.1
	April 1	-	12.9	16.0	25.4	10.5	10.9
1938	March 1	8.9	9.2	10.7	19.0	8.2	7.2
	April 1	15.1	15.3	17.0	29.1	11.4	10.6
1939	March 1	8.6	9.4	12.6	23.4	7.2	8.7
	April 1	2.2	4.5	9.3	21.5	3.4	4.5
1940	March 1	7.4	9.1	11.8	20.4	6.4	5.7
	April 1	7.3	9.6	14.3	29.5	3.8	3.5
1941	March 1	10.2	9.4	11.2	22.7	9.9	7.6
	April 1						

CENTRAL AND SOUTHERN NEVADA

Snow surveys have now been established for Steptoe Valley at Murray Summit and also on Charleston Mountain near Las Vegas to seek a possible relationship between the snow cover on Charleston peak and the flow of artesian wells at its base.

Both stations are located in the Nevada Forest which is providing co-operation like the Humboldt and Toiyabe Forests in the Humboldt Basin.

The following measurements have been reported.

Steptoe Valley

		Snow Depth	Water Content	Density
Murray Summit	March 1	11.6 in.	4.19 in.	36.1%

Charleston Mountain

Course	Date	Elevation (Ft.)	Snow Depth (In.)	Water Content (In.)	Density (%)
Kyle Canyon	March 4	7,400	37.8	11.7	31.0
" "	March 3	8,200	60.9	18.9	31.5
Rainbow Canyon	" 5	7,800	70.9	22.4	31.6
Lee Canyon	6	8,300	56.1	16.5	29.4
" "	7	9,000	68.7	20.6	30.0

The winter precipitation (Dec.-Feb.) at Las Vegas was 280 percent of normal. Thus the normal snow cover on Charleston Mountain should be approximately 1/3 of the amount measured this year.

Nevada Agricultural Experiment Station

Reno, Nevada

March 11, 1941

Carl Elges, Forecaster

J. E. Church, Advisor